Remarks

The Applicants have amended Claim 10 so that the amount of Cr is specified as 16.1 to 18.0%. This range is inherently supported inasmuch as it is encompassed in the original range. Nonetheless, the Applicants note that Steel Nos. 1 and 4 from Table 1 provide the end points for the amount of Cr. Entry into the official file is respectfully requested.

Claims 5, 6, 8 and 10 stand rejected under 35 U.S.C. §103 over CH '459. The Applicants note the Examiner's helpful comments in the latest Action, as well as the comments from the May 15, 2007 Official Action.

The rejection relies on the proposition that Steel Example R 4982-3 in Table 1 of CH '459 is the same as the claimed composition except for the amount of S. The Applicants respectfully submit that there is a further difference. The Applicants invite the Examiner's attention to Claim 10 wherein the amount of Cr is specified as 16.1 to 18.0%. This is well outside of Steel Example R 4982-3. Moreover, that difference is important. It is important for several reasons, not the least of which is that CH '459 teaches those skilled in the art to employ an amount of Cr that is less than that now claimed.

In that regard, the Applicants invite the Examiner's attention to the English translation of CH '459 near the top of page 6 which states that a chromium content above 16% "creates a tendency for a steel to form which is disproportionately ferritic, which is associated with a decline in physical properties." In other words, CH '459 teaches those skilled in the art to limit the amount of Cr to less than 16% because a steel containing more than 16% will be ferritic. In the context of CH '459, ferritic stainless steel sheets are undesirable.

This is exactly the opposite of the Applicants' claimed stainless steel sheets which are deliberately meant to be ferritic. The Applicants therefore respectfully submit that it would hardly be obvious for one skilled in the art to increase the amount of chromium directly in the face of the teachings of CH '459 to produce what CH '459 believes would be a ferritic stainless steel sheet when CH '459 clearly teaches that ferritic stainless sheets are undesirable in that context and that this will result in a decline in physical properties.

The Applicants respectfully submit that this represents a classic situation where the prior art teaches that a variable should be altered in a certain direction and the inventors have changed the variable in the opposite direction. The Applicants respectfully submit that such a situation is one of the most compelling non-obviousness situations where the inventors did the opposite of what the prior art taught and achieved a surprising result. This alone is sufficient to establish clear patentability in this case.

In any event, it can be seen that the steel of CH '459 is not a steel of a ferrite single phase, but a steel of mainly martensite structure or a steel of a dual phase structure comprising martensite and ferrite. Again, this is the opposite of what the Applicants claim inasmuch as they specifically claim a "ferrite" cold rolled stainless steel sheet.

Differences in elongation can be shown as data to indirectly prove the differences of the structures of amended Claim 10 and CH '459. That is to say, in contrast to the high elongation (32% or more) disclosed in Tables 2 and 4 of the Applicants' examples, the elongation (around 16%) disclosed in Tables IV, V and VII of CH '459 is at a far lower level when compared with the elongation of the Applicants' steels. This demonstrates that the structure of Claim 10 is a ferrite single phase, while the structure of the steels of CH '459 contains martensite of a hardening and tempering structure.

On the other hand, Claim 10 recites ferritic stainless steel. The subject matter of Claim 10 is directed to ferrite single phase steel. The ferritic stainless steel of Claim 10, when used at room temperature, is in a state of ferrite single phase and the amount of austenite formed at high temperature is apparently small when compared to the steels of CH '459. The Applicants' steel means stainless steel wherein ferrite single phase can be formed by applying annealing in a ferrite zone in a manufacturing process. Ferritic stainless steel typified by Type 430 steel used for kitchen instruments is generally subjected after hot rolling to cold rolling and annealing processes. As shown in the Applicants' examples, the effects of formability and anti-ridging property of Claim 10 are most noticeable with 16.1 to 18% Cr steel examples but, any effects of the anti-ridging property are not disclosed at all in CH '459.

In addition, steels shown in the Applicants' examples containing 16.1 to 18% Cr become ferrite single phase by applying an appropriate annealing after hot rolling (by not applying quench-tempering, like in the case of CH '459). That is, the Applicants' steels concern stainless steel of ferrite single phase excellent in workability and anti-ridging property and can be used in situations different from CH '459.

On the other hand, steels of CH '459 try to obtain high strength, high toughness and sufficient strength at a high temperature (creep property for a long period of time). To accomplish that object, heat treatments (quench-tempering) are applied to a hot rolled steel sheet to be used. That is to say, according to CH '459, cold rolling and annealing practiced by amended Claim 10 are not performed. Withdrawal of the rejection based on CH '459 is accordingly respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,

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